

Notice of Allowability

Application No.

09/880,149

Examiner

Ulrike Winkler

Applicant(s)

KENTEN ET AL.

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1648

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to August 19, 2005.
2. ☒ The allowed claim(s) is/are 24-30, 36, 37, 40, 43-56.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>08/19/2005</u> | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

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DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114; and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on August 19, 2005 has been entered.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on August 19, 2005 was filed in with a request for a continued examination (RCE) and in conjunction with a petition to withdrawn form issue. The petition to withdrawn the application form issue was granted in a communication mailed by the Office on August 22, 2005.

The submission of the IDS is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement has been considered by the examiner. An initialed and dated copy of the 1449 form is attached to the instant communication.

The following is an examiner's statement of reasons for allowance: The instant invention is drawn to a method of reducing the level of a target protein in a eukaryotic cell. The method employs a composition that comprises a "ubiquitin recognition element" that is covalently linked to a "target protein binding element." A "ubiquitin recognition element" can include a protein, peptide based moiety or a chemical entity that have been described based on their ability to

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inhibit the activity of the ubiquitination pathway (see specification pages 29-35). A “target protein binding element” is different from peptides, proteins, DNA and RNA in that they are not highly charged or polar and are readily absorbed by the body (see specification pages 19-21). Thus “target protein binding element” does not include peptides. The specification defines “target protein binding peptide elements” separately (see specification page 22). Thus the composition used in the instantly claimed methods does not read on a fusion protein.

The art cited in the European Search report does not apply to the instant invention for the following reasons:

(1) EP 0626450 A3 and WO 98/23283 teach E2 fusion proteins which can be used to regulate proteins in a cell. Here the composition comprises E2 which is linked to another protein or peptide that is able to bind to the target protein. E2 does bind E3 (a protein ligase) which adds the ubiquitin onto the target molecule. E2 does bind to E3. Because the instant invention does not encompass fusion proteins or peptides based on the definition of “target protein binding element” the EP 0626450 A3 and WO 98/23283 does not qualify as prior art.

(2) Scheffner et al. discloses a fusion protein between E6 and E7. The E7-E6 fusion protein allows for the degradation of the retinoblastoma protein which binds E7 but does not bind E6. The E6 protein binds the cellular E6AP which has ubiquitin ligase activity and is referred to as being an E3 ligase in the art. Because the instant invention does not encompass fusion proteins or peptides based on the definition of “target protein binding element” the Scheffner et al. does not qualify as prior art.

(3) WO 00/22110 (publication date 20 April 2000) and WO 00/75184 (publication date 14 December 2000) are international applications that were filed before November 29, 2000. In

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the event that these international applications may eventually result in a US patent the earliest 102(e) date will be the filing date of the 35 USC 371 application. Because the publication dates of the WO 00/22110 and WO 00/75184 are after the filing date of the instant application these documents do not qualify as prior art.

(4) Johnson et al. discloses fusion proteins in which the fusion protein itself becomes degraded. The reference does not disclose a composition comprising a ubiquitin binding domain and a target protein binding domain. The fusion protein itself is the target for ubiquitination.

(5) Belshaw et al teaches the use of non-protein compositions to associate two proteins. The reference does not associate the proteins with either E2 or E3.

(6) Patton et al. teaches the general function of the F-box in proteins and how the structure of the proteins helps target protein toward the degradation pathway. The reference does not teach a “target protein binding element” as used in the instant invention.

(7) WO 99/18989 which claims priority to 08/951,621 (now US Pat. No. 6,573,094 B1) teaches how the F-box in proteins directs these proteins to the complex which causes the proteins to be ubiquitinated and thus allows the to be degraded by the proteasome. The reference also teaches the importance of the phosphorylation state of the protein and how this influences the substrate binding ability and ubiquitination. The reference does not teach a “target protein binding element” as used in the instant invention.

Thus none of the references teach the use of a “target protein binding element” as used in the instant invention that is covalently linked to a ubiquitination binding element. Since none of the cited references in the European Search report either anticipate the instant invention or render the instant invention obvious the claims are allowed.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

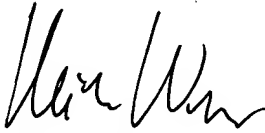
Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Group 1600 via the PTO Fax Center. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG (November 15, 1989). The Group 1600 Official Fax number is: (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Tech Center representative whose telephone number is (571)-272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ulrike Winkler, Ph.D. whose telephone number is 571-272-0912. The examiner can normally be reached M-F, 8:30 am - 5 pm. The examiner can also be reached via email [ulrike.winkler@uspto.gov].

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Housel, can be reached at 571-272-0902.


ULRIKE WINKLER, PH.D.
PRIMARY EXAMINER 10/31/05